**RESULTS**

**INTRODUCTION**

Avibactam, a novel non-β-lactam β-lactamase inhibitor, inhibits class A, class C and some class D β-lactamases, including extended-spectrum β-lactamases (ESBL), carbapenemases, and the endogenous AmpC of Pseudomonas aeruginosa. Ceftazidime-avibactam combination therapy has been approved in Europe and the US in three different indications. This study examined the in vitro activity of ceftazidime-avibactam and comparator antibiotics against Enterobacteriaceae respiratory tract infections (RTI) in the Asia-Pacific region in 2014-2016 as part of the INFORM surveillance program.

**MATERIALS & METHODS**

- Non-duplicate isolates from patients with RTI were collected from 26 medical centers in Austria, Hong Kong, Japan, Korea, Malaysia, New Zealand, Philippines, South Korea, Taiwan, and Thailand.
- Susceptibility testing was performed by broth microdilution [1] and interpreted using EUCAST breakpoints for ceftazidime-avibactam [2] and comparator agents.
- Ceftazidime-avibactam was tested with a fixed concentration of 4 µg/mL avibactam.
- The multiplex resistant phenotype category was defined as resistance to at least 3 drug classes, including: carbapenem, aztreonam, piperacillin-tazobactam, meropenem, ticarcillin, amikacin, tigecycline, and colistin.
- Meropenem-nonsusceptible isolates were screened for 3-class β-lactamase genes by PCR and sequencing [3].

**RESULTS SUMMARY**

- Ceftazidime-avibactam showed potent in vitro activity against the entire collection of Enterobacteriaceae isolates with an MIC90 value of 0.5 µg/mL and 99.0% susceptibility. Notably, ceftazidime-avibactam was active against Enterobacteriaceae that were carbapenem-resistant (n=552) (93.5% susceptible) and Enterobacteriaceae that were carbapenem-resistant (95.7% susceptible) and MDR (100% susceptible) and MDR (91.9% susceptible).
- Ceftazidime-avibactam was 100% active against Enterobacteriaceae that carried a KPC (n=48). However, all isolates harboring an OXA-48-like enzyme also carried a New Delhi metallo-β-lactamase (NDM), thus activity versus Enterobacteriaceae with solely possessing OXA-48 could not be assessed. Isolates carrying an MBL were resistant to ceftazidime-avibactam.
- For P. aeruginosa, ceftazidime-avibactam was more active than meropenem against the entire population and all phenotypic subsets.
- All P. aeruginosa isolates that were resistant to colistin were susceptible to ceftazidime-avibactam (n=35).

**CONCLUSIONS**

- Enterobacteriaceae from LRTI in the Asia-Pacific region were susceptible to ceftazidime-avibactam except for those isolates harboring a MBL.
- Ceftazidime-avibactam demonstrated potent in vitro activity against P. aeruginosa isolates that were resistant to colistin. A larger proportion of P. aeruginosa isolates were susceptible to ceftazidime-avibactam than meropenem.
- Ceftazidime-avibactam is effective in vitro against Gram-negative bacteria that do not possess MBL.

**REFERENCES & ACKNOWLEDGMENTS**


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